



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/809,718	03/26/2004	Shigeo Takenaka	250760US2S CONT	8085
22850	7590	09/07/2005		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER COLON, GERMAN	
			ART UNIT	PAPER NUMBER
			2879	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/809,718	<b>Applicant(s)</b> TAKENAKA ET AL.	
	<b>Examiner</b> German Colón	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 10,11 and 13-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 10,11 and 13-20 is/are rejected.
- 7) ☒ Claim(s) 18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The Amendment, filed on June 08, 2005, has been entered and acknowledged by the Examiner.
2. Cancellation of claims 1-4, 6-9 and 12 has been entered.

### ***Claim Objections***

3. Claim 18 is objected to because of the following informalities:

The claim recites the limitation of each of the second spacers being aligned with the first *spacer*. However, since there is a plurality of second spacers, they should be aligned with the (plurality of) first *spacers*.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Fahlen et al. (US 5,667,418).

Art Unit: 2879

Regarding claim 17, Fahlen discloses an image display device comprising (see at least Figs. 1-2B):

a first substrate **202** including an image display surface and a metal back formed on the image display surface (see at least Col. 27, lines 23-25);

a second substrate **203** opposed to the first substrate across a gap and including a plurality of electron sources which excite the image display surface (see Fig. 2A and 9A);

a grid **206** provided between the first and second substrates and including a first surface opposed to the first substrate, a second surface opposed to the second substrate, and a plurality of beam passage apertures opposed to the electron sources;

a plurality of spacers which maintain the space between the first substrate and the second substrate, the spacers including a plurality of columnar first spacers **208** set up on the first surface of the grid; and a plurality of columnar second spacers **207** set up on the second surface of the grid, the second spacers having a surface resistance lower than a surface resistance of the first spacers (see Col. 17, 58-63); and

a voltage supply unit **110** (see drawings and respective description).

Regarding claim 18, Fahlen discloses each of the first spacers being set up on the first surface of the grid between passage apertures, and

each of the second spacers being set up on the second surface of the grid between the beam passage apertures and aligned with the first spacers (see at least Fig. 2A).

Regarding claim 19, Fahlen discloses the first spacers being shorter than the second spacers in height (see Col. 6, line 65 to Col. 7, line 3).

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10-11, 13-16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fahlen et al. (US 5,667,418) in view of Anderson et al. (US 5,811,927).

Referring to claim 10, Fahlen discloses an image display device comprising (see at least Figs. 1-2B):

a first substrate **202** including an image display surface and a metal back formed on the image display surface (see at least Col. 27, lines 23-25);

a second substrate **203** opposed to the first substrate across a gap and including a plurality of electron sources which excite the image display surface (see Fig. 2A and 9A);

a grid **206** provided between the first and second substrates and including a first surface opposed to the first substrate, a second surface opposed to the second substrate, and a plurality of beam passage apertures opposed to the electron sources;

a plurality of spacers which maintain the space between the first substrate and the second substrate, the spacers including a plurality of columnar first spacers **208** set up on the first surface of the grid; and a plurality of columnar second spacers **207** set up on the second surface of the grid, the first spacers being shorter than the second spacers in height (see Col. 6, line 65 to Col. 7, line 3); and

a voltage supply unit **110** (see drawings and respective description). Fahlen is silent regarding the limitation of height correcting layers interposed between the respective first spacers and the first substrate.

However, in the same field of endeavor, Anderson discloses an image display having a plurality of spacers (see at least Fig. 10), and teaches to provide height correcting layers **112** with the purpose of providing a substantially uniform load distribution among the spacers by adjusting their height (see Col. 2, lines 10-14; and Col. 7, lines 41-51). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include height correcting layers to the device of Fahlen in order to obtain a substantially uniform load distribution among the spacers, reducing the variation in height within the device, and consequently, reducing breakage of the spacers or of the device.

Referring to claim 11, Fahlen discloses each of the first spacers being set up on the first surface of the grid between passage apertures, and

each of the second spacers being set up on the second surface of the grid between the beam passage apertures and aligned with the first spacers (see at least Fig. 2A).

Referring to claim 13, Fahlen-Anderson discloses the height correcting layer having a resistance lower than that of the spacers (see materials disclosed for height correcting layer and spacer).

Referring to claim 14, Fahlen discloses the second spacers having a surface resistance lower than a surface resistance of the first spacers (see Col. 17, 58-63).

In regards to claims 15 and 20, Fahlen-Anderson discloses the surface of the grid and an inner surface of each beam passage aperture being subjected to a high-resistance surface

Art Unit: 2879

treatment (see US '418, at least Col. 14, lines 41-43; Col. 17, lines 51-53; and Col. 19, lines 26-48). Fahlen-Anderson is silent regarding the resistance being set to  $E+8 \Omega/\square$ .

However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable value of a result effective variable involves only routine skill in the art. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the surface of the grid and an inner surface of each beam passage aperture with a resistance of  $E+8 \Omega/\square$ , since optimization of workable ranges is considered within the skill of the art.

In regards to claim 16, Fahlen-Anderson discloses the claimed invention except for the limitation of the second voltage applied to the grid being set less than or equal to 1.5 times as high as the first voltage applied to the first substrate.

However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable value of a result effective variable involves only routine skill in the art. Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the second voltage applied to the grid being set less than or equal to 1.5 times as high as the first voltage applied to the first substrate, since optimization of workable ranges is considered within the skill of the art.

### *Response to Arguments*

Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

***Prior Art of Record***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

US 5,754,003, discloses a device with height adjusting layers for the spacers.

US 6,617,798; US 6,034,810; US 5864205 and US 6,320,310 disclose a device with spacer structures of different height.

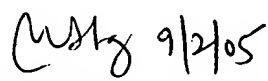
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to German Colón whose telephone number is 571-272-2451. The examiner can normally be reached on Monday thru Thursday, from 8:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
gc

  
MARICELI SANTIAGO  
PRIMARY EXAMINER